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From: Backer, Dana
Sent: 2017-12-08T13:23:07-05:00
Importance: Normal
Subject: Due 12/13- Mnger's Report Section 4 and 6 for your review
Received: 2017-12-08T13:23:21-05:00
Section 6 Summary of Performance Measures.docx
Section 4 new table.docx

Hi Folks,
I have a deadline for the manager's report and need your assistance. This won't take long so please find 15 minutes to review the two attached tables. Section 4 are the current science projects (there are a few outstanding paleo and wildlife projects that will be added). Section 6 is the status and trends for the Monument Resources.

Make your changes in track changes and send it back to me by COB on **Wednesday Dec 13th.**

Thanks

Dana Backer
Science Program Administrator
Grand Staircase Escalante National Monument
Kanab, UT 84741
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Project Name	Project Description	Project Key Words	Principal Investigator	Project Status/ Accomplishments	BLM Contributed Funds (FY17)
GSENM Archaeological and Historical Assessment (L16AS00140)	The purpose of this project is to research and produce a comprehensive grazing and ranching history for the GSENM area (Kane and Garfield Counties) as well as produce interpretive information for the old Paria townsite.	grazing, ranching, archaeology	Jerry Spangler, Colorado Plateau Archaeological Alliance	Reports in progress	$0
GSENM Pollen Core and Ethnobotanical Analysis (L16AS00143)	The purpose of this inventory is to further analyze the pollen cores collected and initially analyzed under agreement L11AC20222; this information can be used in conjunction with historic and prehistoric use of the landscape and climate change over time.	archaeology, paleoenvir-onments, palynology, botany, climate change	Dr. Scott Anderson, Northern Arizona University	Report in progress	$12,214
Identification and collection of *Penstemon* taxa native to Utah for diversification, documentation, and genotyping studies	Purpose: To produce a *Penstemon* field guide for Utah, and to gain a better understanding of the genetic diversity of *Penstemon* within Utah.	botany, diversity	Mikel R.Stevens, Brigham Young University Plant and Wildlife Sciences Department	Research in progress Annual reports submitted and one publication	$0
Baseline Inventory of Bryophytes of GSENM (L14AC00275)	The research examines questions/issues dealing with (1) what species of bryophytes occur within the GSENM?, (2) where are the “hot spots” of bryophyte diversity within the GSENM?, and (3) characterizing rare, regionally disjoint, or new species to science within the GSENM.	botany, taxonomy, diversity, lichens, liverworts	Lloyd Stark, University of Nevada-Las Vegas	Research in progress; annual reports submitted	$0

Scent-mediated diversification of evening primrose (*Onagraceae*) flowers and moths across western North America	This project will examine the role of floral scent in the diversification of a model plant-pollinator-enemy system in the western North American evening primroses *Onagraceae*), focusing on how chemically-mediated interactions between flowering plants, pollinators, and enemies affect diversification at population, species, and higher levels.	botany, ecology, plant ecology, pollination	Dr. Krissa Skogen, et al. Chicago Botanical Gardens	Research in progress; annual report submitted	$0
Phylogeography and evolution of *Mentzelia cronquistii Loasaceae*) and the *Mentzelia marginata* complex Email 12/5	This project will explore how geographic and topographic complexity shape migration routes, gene flow, and plant speciation on the Colorado Plateau through a study of the geographic patterning of genetic diversity in the *Mentzelia marginata* complex.	botany, plant speciation	Dr. Larry Hufford and Joseph Grissom, Washington State University; Wendy Hodgson, Desert Botanical Garden, Phoenix, AZ	Research in progress	$0
Learning from native 'winners'	The purpose of the project is to identify native species and populations that can perform well in degraded sites and potentially facilitate succession to diverse native communities.	botany, restoration	Andrea Kramer et al, Chicago Botanic Garden	Research in progress; annual report submitted	$0

BLM Utah rare plant research and ex-situ conservation of plant species	The purpose for this project is to conduct ex-situ conservation through seed collection and long-term storage of threatened, endangered, candidate, BLM sensitive and native species in southwestern and other areas of Utah. Seed collected will be stored as long-term ex-situ conservation germ plasm at both Red Butte Garden and CGRP in Fort Collins. If seed numbers allow, a small portion will be used to conduct non- destructive seed viability and propagation studies.	botany, seed conservation	Bruce Pavlik, Red Butte Garden, University of Utah	Research in progress; annual report submitted	$0
USDA Forest Service National Forest Inventory and Analysis program	Purpose: To conduct forest inventory at selected locations throughout the Monument to determine: status and trends in forest area and location; species, size, and health of trees; total tree growth, mortality, and removals by harvest; wood production and utilization rates by various products; and forest land ownership.	ecology, forestry, forest ecology	Maryfaith Snyder, USDA Forest Service Rocky Mountain Research Station, Interior West Forest Inventory and Analysis	Research in progress.	$0
BLM Assessment, Inventory and Monitoring (AIM) Project (L13AC00126)	This project will collect data on land health for the Utah pilot implementation project of BLM's national Assessment, inventory and Monitoring (AIM) strategy.	land health, rangelands	Jerry Keir, Great Basin Institute	Research in progress; annual report and datasets submitted	$59.992.37
Toward an integration of historical and contemporary data to	Purpose: to conduct a retrospective study of existing vegetation	landscape ecology, land health, range	Brett Dickson, Northern Arizona University	Will be completed in FY 2018	$0

inform assessment, monitoring, and decision-making on the Grand Staircase-Escalante National Monument (L13AC00249)	assessment and monitoring data and to compare the results of that study with anticipated results under the AIM strategy. This study will: a) evaluate the representativeness of existing GSENM vegetation monitoring data previously sampled using both probabilistic and non-probabilistic designs; and b) summarize and compare methodologies used to collect these data in a rigorous analytical framework	assessment, range monitoring			
Toward an integration of historical and contemporary data to inform assessment, monitoring, and decision-making on the Grand Staircase-Escalante National Monument (L13AC00249)	Purpose: to conduct a retrospective study of existing vegetation assessment and monitoring data and to compare the results of that study with anticipated results under the AIM strategy. This study will: a) evaluate the representativeness of existing GSENM vegetation monitoring data previously sampled using both probabilistic and non-probabilistic designs; and b) summarize and compare methodologies used to collect these data in a rigorous analytical framework.	landscape ecology, land health, range assessment, range monitoring	Brett Dickson et al., Northern Arizona University	Will be completed in FY 2018	$0
Baseline Acoustic Monitoring at GSENM (L14AC00078)	This agreement was initiated in 2014 to conduct baseline acoustic monitoring at GSENM to determine current soundscape conditions and develop a better understanding of how natural sound and noise	recreation, visitor experience	Britton Mace, et al. Southern Utah University, Dept. of Psychology	Research in progress; monitoring reports submitted; presentation at COPL Biennial Conference Sept 2017 .	$23,171

	affect visitor experience and monument resources.				
Cougar Connectivity Study	GSENM is the last area to be studied on the Colorado Plateau. Determines the movement and ranges of cougars.	wildlife, animal ecology, habitat connectivity, climate change, mountain lion	David Mattson, USGS; also NPS and Utah Division of Wildlife Resources	Research in progress	$0
Bat population and pollen study	This project identifies species, movement, and populations; samples from pollinators are collected to identify the various types of pollen.	wildlife, ecology, zoology, botany	Terry Tolbert, GSENM; volunteers, Dixie National Forest, BCNP	Research in progress	$5000
Hummingbird migration study	Banding and tracking migration of the different species of humming birds and their importance to pollination. samples from pollinators are collected to identify the various types of pollen.	wildlife, botany, zoology	Terry Tolbert, GSENM; volunteers, Dixie National Forest, BCNP	Research in progress	$2500
Pronghorn Telemetry	Tracking the migration, reproduction, and forage use of five different populations of pronghorn.	wildlife, zoology, animal ecology	Cameron McQuivey, GSENM; also Utah Department of Wildlife Resources, volunteers	Research in progress	$0
Estimating Occupancy Rates, Reproductive Effort and Effects of Recreation on Mexican Spotted Owls in Southern Utah	Purpose: This research project involves studying the prey dynamics of the threatened Mexican Spotted Owl in the Monument. The objective of this project is to develop a long-term (i.e., >10 year) monitoring study concerning trends in prey abundance and factors that influence spotted owl population dynamics in the Monument. A second objective of this research will be to assess the effects of climate changes on both spotted owls and their primary prey.	zoology, animal ecology, endangered species	David W. Willey, Montana State University Department of Ecology	Research in progress	$0

A study of American Black Bears (*Ursus americanus*) on the Paunsaugunt Plateau, Utah	This project will to identify the movements of black bears on the Paunsaugunt Plateau in relation to centers of human activity and anthropogenic food sources, including: documenting movement, association with anthropogenic food sources, annual reproduction and survival data, evaluating methods for aversively conditioning food-conditioned bears.	zoology, animal ecology, wildlife, behavioral ecology	Dr. Tom Smith, Brigham Young University, Wildlife and Wildlands Conservation Program	Research in progress; quarterly progress reports submitted	$0
Bees, especially *Anthophora pueblo* and other sandstone nesters	This project will conduct a taxonomic revision and provide an identification key for the New World species of *Heliophila*.	zoology, bees, arthropod	Michael Orr, et al. Utah State University, Dept of Biology and USDA-ARS National Pollinating Insect Collection	Research in progress; annual report submitted	$0
Habitat and Biodiversity Monitoring Using Terrestrial Arthropod Surveys	This project seeks to search for and collect a new moth species in the genus *Plagiomimicus (Noctuidae, Amphipyrinae*), conduct a general sampling of moths, and search for and collect a new subspecies (possible new species) of butterfly diurnally (net) in the genus *Euphilotes (Lycaenidae*).	zoology, ecology, animal ecology, *Lepidoptera*	Paul Opler and David Wikle, Colorado State University	Research in progress; annual report submitted; one publication in a peer-reviewed journal	$0
Birds and tamarisk beetle Emailed 12/5	Purpose: To conduct bird surveys and surveys for tamarisk beetle in the Escalante-Grand Staircase National Monument.	zoology, ecology, ornithology, invertebrate zoology	Jason Beason, Rocky Mountain Bird Observatory	Research in progress	$0
Diversity of insect populations with a focus on systematic biology and life history of Southwestern moth	This project is part of ongoing research exploring insect diversity on public lands in Texas, New Mexico, Arizona and Utah. It focuses	zoology, *Leipidoptera*	John W. Gruber, Friends' Central School and Jason D. Weintraub, Academy of Natural Sciences of	Research in progress	$0

species	on moths in the family *Geometridae* in an effort to gain insight into the taxonomic position and host plant associations of selected species in the genus *Nemoria*.		Philadelphia		
Ground Water Study to Document MODFLOW groundwater model developed for GSENM (L16PGxxxxx)	The USGS, Utah Water Science Center, will document the construction and results on an existing numerical groundwater model (MODFLOW) developed for the GSENM in an Open-File Report. The model can be used as a tool for simulating and testing the conceptual understanding of the GSENM groundwater system.	hydrology,ecology	Melissa Masbruch USGS Utah Water Science Center	Research in progress	$0
Colorado Plateau Rapid Ecoregional Assessment (REA) Step-down for the Escalante River Watershed	The Utah State University Department of Watershed Sciences is working with the GSENM and Utah State Office to integrate the Colorado Plateau REA and step-down analysis to the Escalante River Watershed to aid in management planning. This project will identify resource conditions, stressors, and management priorities in the Escalante River watershed and determine if an integrated assessment can be meaningfully applied to local resource management with the objective of developing and integrating appropriate assessment tools into watershed resources planning.	Aquatics, Vegetation, Riparian, Rapid Ecoregional Assessment	Scott Miller; BLM National Aquatic Monitoring Center Brian Laub, Wally MacFarlane, Joe Wheaton; Department of Watershed Sciences Utah State University	Will be completed in FY18	$0

GSENM Volunteer, Science, and Education Program (L14AC000324)	The purpose of this agreement is to provide volunteer, educational, and interpretive services including educational and visitor services staff, the production of interpretive and educational materials, funding for interpretive, educational, and research purposes, and cooperating services and funding for research and development of materials of interpretive and educational value to enhance the public knowledge and appreciation of BLM's role in the research and management of public lands, including recreation and natural, cultural, and historic resources.	Interpretation, public outreach	Noel Poe, Grand Staircase Escalante Partners Executive Director	Accomplishments included as part of division reports, i.e. Volunteer; Education, Interpretation; Archeology Site Steward; Paleontology Program; and Escalante River Watershed Partnership	$30,000
BLM Utah GSENM IIC Youth Outreach, Education and Title I Crew and Internship Wildlife and Resource Management Project - Assistance Agreement (L16AC00118)	The purpose of this agreement is to provide enhanced academic or educational opportunities to Title 1 Native American, underserved, and rural disadvantaged youth from 16-35. These opportunities also serve as an introduction to careers in the BLM under the mentorship of a wide variety of public land management specialists. In 2017, internships and Corps work crews focused on inventory, monitoring, evaluating, maintaining, and/or collecting natural, cultural, and/or recreation resources, public outreach, and/or facility operations.	Youth, Education, Public Land Corps, Internships, Natural and Cultural Resource Conservation	Bridget Eastep Partnership Director, Southern Utah University Intergovernmental Internship Cooperative (IIC)	Youth Partner Employment Report	$142,900

Collaborative Research to Monitor and Record Backcountry Use Impacts (L16AC00073)	The purpose is to provide the continued inventory and monitoring of recreation impacts within the backcountry and dispersed areas throughout GSENM.	Visitor impacts, ecology, resource damage, recreation impacts	Derrick Taff,- Penn State, Jeremy Wimpey, Jeff Marion.- VA Tech	Research in progress; annual reports	$33,500
Night Skies	Allysia should this be included				
Scientific Study to Employ GPS Technology to Understand Livestock Distribution, Grazing Practices, and Statistical Analysis of Rangeland Data (L17AC00108)	The objective of this project is to help rangeland mangers quantify how cattle are distributed across a rugged desert landscapes and how that affects utilization and harvest efficiency. In addition, USU researchers will analyze pre and post data for several GSENM projects.	Harvest efficiencies, elevation gradient utilization	Kevin Heaton, Eric Thacker, and Beth Burritt. UT State University	Research initiated 2017	$25,000
Wild turkey tracking and survival study Terry assistance agreement n b	The project proposal will evaluate the use of behavior and habitats by tracking wild turkeys in areas where Russian olive has been removed and in control areas. This research project will provide very valuable information to guide future turkey management and Russian olive removal projects in southwest desert riparian habitats.	Invasive woody species, wildlife, ecology, restoration	Nicki Frey, Utah State University	Research initiated in 2017	$15,000
Reptile diversity across vegetation treatment types Terry assistance agreement n b	The scientific objectives include: 1) conducting a baseline inventory for reptiles and amphibians with a focus on species which are rare, threatened or of special concern, 2) gathering data related to the use and movement of different habitats, 3) gathering data which will better enable us to understand the basic needs of reptiles and	Herpetology, ecology, habitat	William Heyborne, Southern Utah University	Research initiated in 2017	Terry how much

	amphibians, including hibernacula, refugia, habitat preferences, etc., 4) collecting baseline data regarding habitat use and preference among reptiles and amphibians with regards to vegetation treatments especially pinyon/juniper removal.				
Sediment basin mapping with Structure from Motion photogrammetry (L17PG00247)	BLM has a program to maintain and reconstruct sediment retention basins in Grand Staircase National Monument and in Kanab Field Office area. This study will assess erosion and sediment transport rates in watersheds above sediment retention basins to: determine sediment yield from watersheds and estimate annual sediment retention and salinity control from sediment basins; correlate sediment yield with watershed characteristics; and improve estimates of basin life cycle and maintenance requirements.	Salinity, erosion, sediment ponds	Tim McKinney, USGS	Research initiated in 2017	$84,000

Understanding the invasion process of Russian-olive within the Escalante River Watershed	The purpose of the research is to investigation: 1) what is nature of the Russian-olive invasion along the Escalante River? 2) Given its early presence in the watershed, why did it take so long to invade along the Escalante River corridor? 3) Was the invasion in the 1990s as sudden as it appeared to be? 4) Do floods facilitate establishment and spread? 5) Are there other important factors or agents, such as animals, involved in the invasion? 6) Can we identify important source areas for the contemporary invasion?	Restoration, hydrology, channel morphology	Michael Scott-UT State University	Publication in review	$0
Sandstone Weathering Profiles	The purpose of this project is to study weathering processes and their products in the Navajo Sandstone, and to compare them with those in Japan and related areas in Asia with different geologic and climate settings.	geochemistry, weathering	Hirokazu Yoshida, Nagoya University	Project initiated in FY14. No fieldwork in FY2016. Peer reviewed publication expected in FY2017.	$0
Iron Geochemistry in Sandstone Formations.	Purpose: To study various iron-oxide rich concretions using petrography and SEM, and to measure the orientation of more pipe-like concretions that define the flow direction and geochemical evolution of a paleoaquifer.	geology, geochemistry	David B. Loope, University of Nebraska Department of Geosciences	Research in progress.	$0
Early Laramide influenced sedimentary patterns along the Eas Kaibab Monocline.	The purpose of this project is to examine the geology of the East Kaibab Monocline, especially with respect to sag ponds.	geology, sedimentology	Dr. Ed Simpson, Kutztown University of Pennsylvania, Department of Physical Sciences and Dr. Mike Wizevich, Central Connecticut State University	Researchy ongoing. Two scientific publications in FY2016. Annual Report submitted.	$0

NSF Earth Life Transitions (ELT) Project: Perturbation of the Marine Food Web and Extinction During the Oceanic Anoxic Event at the Cenomanian/Turonian Boundary	The purpose of this project is to test for evidence of ocean acidification during the OAE 2 event. This permit authorizes the team to drill a hole in the Tropic Shale to collect samples of unaltered bivalves, snails, and ammonites for analysis.	geology, sedimentology, paleobiology	Brad Sageman (Northwestern U); Mark Leckie (UMass-Amherst); Tim Bralower, Mike Arthur, Matt Fantle, and Lee Kump (Pennsylvania State U); Mick Follows, Julio Sepulveda; (MIT)	Core was drilled summer of FY2014. Samples currently undergoing analyzes	$0
Correlation and Environments of the Cretaceous age Naturita Formation	This study is establishing detailed correlations between the Naturita in GSENM and outcops elsewhere in the Colorado Plateau region.	Geology, stratigraphy.	Brad Sageman (Northwestern University).	New project for FY2016.	$0
Soft Sediment Deformation and Injectites in the Jurassic Carmel Formation, Southern Utah: Implications for Reservoir Characterization, and Geomorphic Features on Mars	This study will examine a well-exposed example of numerous injectites/clastic pipes in the Jurassic Carmel Formation south of Big Water, Utah and to compare them to similar pipes along the White House Trailhead road, South of the Paria Contact Station. The objectives are to: characterize the sedimentology, mineralogy, and diagenesis of the pipes; map population clusters; measure size hierarchies; and examine spatial relationships of regional tectonics, faulting, and relation to paleoshorelines.	geology, sedimentology, paleoshorelines	Dr. Marjorie Chan, University of Utah	Research In Progress; annual report submitted; Peer reviewed journal article published in FY2016.	$0
Regional correlation of the Triassic age Chinle Formation	This study is attempting to establish a detailed time based correlation of Late Triassic strata in the Circle Cliffs area with that of the better known Painted Desert sections.	Geology, stratigraphy	Dr. Jeff Martz, University of Houston.	New project for FY2016. Research ongoing Fieldwork was conducted summer of FY2016.	$0
EarthScope Program	Purpose: To install one GPS monument in GSENM as part of a network of 33 sites in the southwest to study the crustal motion and deformation of the Colorado Plateau and the transition zones with the northern and southern Basin	geology, seismology	Cornelius Kreemer, University of Nevada Reno Nevada Bureau of Mines and Geology	Permit expired in FY2014, but station is still installed and reporting data to network.	$0

	and Range.				
Paleomagentic Survey of Late Cretaceous Strata Kaiparowits Plateau, Utah (L08AC13131)	Purpose: To refine the temporal characterization of late Cretaceous strata through magnetostratigraphic analysis and its correlation to the Global Geomagnetic Polarity Time Scale (GPTS) in order that the hundreds of fossil localities currently known can be accurately placed in time. Field collection of rock samples to analyze at the UC Berkeley Geochronology lab for remnant magnetism to determine polarity and age.	geology, stratigraphy, dating	L. Barry Albright III, University of North Florida Department of Physics	Research ongoing. Peer reviewed paper published FY2016. Funded for an additional 5 years.	$6,000
Facies analysis, correlation, and reservoir prediction in nonmarine shallow marine strata: Cretaceous Straight Cliffs Formation, Utah	Purpose: To document fluctuating marginal marine successions, explain facies variation in correlative nonmarine strata, and address the possible primary factors driving development of sequence and stratigraphic architecture (e.g., tectonic and eustatic controls).	geology, stratigraphy, deposition	Cari Johnson, University of Utah Department of Geology and Geophysics	Research in progress; annual report submitted; Four peer reviewed papers published; one dissertation finished and submitted.	$0
Late Cretaceous Biodiversity GSENM region.	Inventory, collection, and research on late Cretaceous fossil ecosystems of the Grand Staircase and Kaiparowits Plateau areas.	paleontology (vertebrate, invertebrate, paleobotanical, ichnology	Dr. Alan Titus, Monument Paleontologist, Grand Staircase- Escalante National Monument.	One additional scientific publication. Annual report submitted.	In-house